

NASA Health and Air Quality

remote sensing for public health

volume 1, june 2016

Our Research in the News

- Predictive modeling to help fight Zika and control its spread. [Read more.](#)
- NASA's TEMPO will make major contribution to public health by monitoring air pollution from space. [Read more.](#)
- NASA Space Apps takes challenges across the globe. [Read more.](#)
- Toxic sulfur dioxide emissions detected. [Read more.](#)

publications

[The Impact of Cycling Temperature on the Transmission of the West Nile Virus.](#)

Danforth ME, Reisen WK, Barker CM

[Emergence or improved detection of Japanese encephalitis virus in the Himalayan highlands?](#)

Baylis M et al.

[Assessing public health burden associated with exposure to ambient black carbon in the United States.](#)

Li Y et al.

[Impacts of Foreign, Domestic, and State-Level Emissions on Ozone-Induced Vegetation Loss in the United States.](#)

Lapina K, Henze DK, Milford JB, Travis K

[Urbanization Level and Vulnerability to Heat-Related Mortality in Jiangsu Province, China.](#)

Chen K et al.

[Associations between long-term exposure to ambient particulate air pollution and type 2 diabetes prevalence, blood glucose and glycosylated hemoglobin levels in China.](#)

Liu C et al.

[The Impact of Three Recent Coal-fired Power Plant Closings on Pittsburgh Air Quality: A Natural Experiment.](#)

Russell MC, Belle JH, Liu Y

[Acute effects of air pollution on influenza-like illness in Nanjing, China: A population-based study.](#)

Huang L et al.

[Maternal exposure to traffic-related air pollution and birth defects in Massachusetts.](#)

Girguis MS et al.

[Ambient Air Pollution Exposure Estimation for the Global Burden of Disease 2013.](#)

Brauer M et al.

[Is There a Relationship Between the Concentration of Same-Sex Couples and Tobacco Retailer Density?](#)

Lee JG et al.

[Estimating ground-level PM\(10\) in a Chinese city by combining satellite data, meteorological information and a land use regression model.](#)

Meng X et al.



upcoming:

ARSET Webinars:
Fundamentals of Satellite Remote Sensing for Health Monitoring
June 2-30, 2016

Introduction to Satellite Remote Sensing for Air Quality Applications
July 6-Aug 3, 2016

Meetings:
Air and Waste Management Association Annual Conference
June 20-23, 2016
New Orleans, LA

TEMPO: Applications Workshop
July 12-13, 2016
Huntsville, AL

HAQ Annual Team Meeting
September 20-21, 2016
Asheville, NC

[Pediatric Emergency Visits and Short-Term Changes in PM2.5 Concentrations in the U.S. State of Georgia.](#)

Strickland MJ et al.

[Antagonistic Growth Effects of Mercury and Selenium in *Caenorhabditis elegans* Are Chemical-Species-Dependent and Do Not Depend on Internal Hg/Se Ratios.](#)

Wyatt LH et al.

[Occupational Risk Factors for Tuberculosis Among Healthcare Workers in KwaZulu-Natal, South Africa.](#)

Tudor C et al.

HEALTH AND AIR QUALITY TEAM APPLIED SCIENCES PROGRAM

JOHN HAYNES

PROGRAM MANAGER
HEADQUARTERS

SUE ESTES

ASSOCIATE
MARSHALL SPACE
FLIGHT CENTER

ALI OMAR

ASSOCIATE
NASA-LANGLEY
RESEARCH CENTER

SHOBHANA GUPTA

AAAS S&T POLICY FELLOW
HEADQUARTERS



NASA Space Apps 2016 featured the challenge Aircheck: to create a platform for collection of crowd-sourced data on occurrence and severity of symptoms related to allergies and respiratory diseases; and comparison of a symptom map with NASA provided environmental data. Innovative solutions included real-time data extraction from Twitter and machine learning to understand the relationship between air quality and public health; and a wearable that filtration system that activates based on live local air quality data from a mobile app. Check out all the innovative solutions here!

publications continued...

[Interannual Variability in Baseline Ozone and Its Relationship to Surface Ozone in the Western U.S.](#)
Baylon PM et al.

[A pervasive role for biomass burning in tropical high ozone/low water structures.](#)
Anderson DC et al.

[Identifying areas at risk of low birth weight using spatial epidemiology: A small area surveillance study.](#)
Insaf TZ, Talbot T

[Geographic Variations of Colorectal and Breast Cancer Late-Stage Diagnosis and the Effects of Neighborhood-Level Factors.](#)
Lin Y, Wimberly MC

[Direct and indirect effects of climate change on projected future fire regimes in the western United States.](#)
Liu Z, Wimberly MC

resources

for our community

ARSET WEBINAR SERIES

NASA ARSET offers online webinars to help beginners and advanced professionals use NASA Earth science data and modeling.

VECTORBASE

National Institute of Allergy and Infectious Diseases (of NIH) Bioinformatics Resource Center provides data on Invertebrate Vectors of Human Pathogens.

NATIONAL ENVIRONMENTAL PUBLIC HEALTH TRACKING NETWORK

Centers for Disease Control and Prevention's network of health, exposure, and hazard data.

NASA PATENT PORTFOLIO

NASA investments in pioneering research find secondary uses through patents available to US citizens.

CDC SURVEILLANCE RESOURCE CENTER

CDC's interactive database systems in topics including environmental health, infectious diseases, and global health.

CITIZENSCIENCE.GOV

Portal with assets including a searchable catalog of federally supported citizen science projects.

DATA.GOV

Data, tools, and resources to conduct research, develop web and mobile applications, design data visualizations.

WHAT'S NEW IN THE FIELD?

ASSOCIATION OF IMPROVED AIR QUALITY WITH LUNG DEVELOPMENT IN CHILDREN

New England Journal of Medicine
March 5, 2015

Authors W. James Gauderman et al. demonstrate measurable improvements in lung-function development in children in southern California associated with improvements in air quality.

RESPONDING TO THE EFFECTS OF EXTREME HEAT: BALTIMORE CITY'S CODE RED PROGRAM

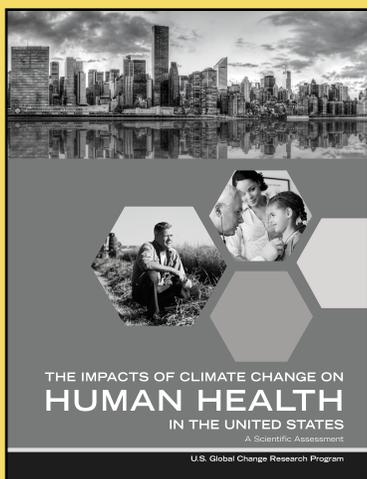
Health Security
April 15, 2016

Jennifer L. Martin from the Baltimore City Health Department discusses the city's extreme heat response plan, the Code Red program, which leverages existing assets to increase the community's resilience to extreme heat.

INTEGRATING TRANSGENIC VECTOR MANIPULATION WITH CLINICAL INTERVENTIONS TO MANAGE VECTOR-BORNE DISEASES

PLOS
March 10, 2016

Kenichi Okamoto et al. caution against assuming public health benefits as a sum of effects of clinical interventions (vaccination and medication) and transgenic vector manipulations, instead, recommending comparative studies to determine which combinations of approaches can be used to attain public health objectives.



NASA PIs CONTRIBUTE TO US GLOBAL CHANGE RESEARCH PROGRAMS'S CLIMATE AND HEALTH ASSESSMENT

Featuring input from:

Radley Horton (GISS)
Temperature-Related Death and Illness

Dale Quattrochi (MSFC)
Jeffrey Luvall (MSFC)
Vanessa Escobar (GSFC)
Impacts of Extreme Events on Health